

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

J. E. Dyer, Director

In the Matter of

ENTERGY NUCLEAR VERMONT
YANKEE, LLC and
ENTERGY NUCLEAR OPERATIONS, INC.
(Vermont Yankee Nuclear Power Station)

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Docket No. 50-271

License No. DPR-28

DIRECTOR'S DECISION UNDER 10 CFR 2.206

I. Introduction

By letter dated July 29, 2004, as supplemented on December 8, 2004, Mr. Paul Blanch and Mr. Arnold Gundersen (the Petitioners) filed a petition pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 2.206. The Petitioners requested that the U.S. Nuclear Regulatory Commission (NRC) issue a Demand for Information requiring Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (Entergy or the licensee) to provide information that clearly and unambiguously describes how Vermont Yankee Nuclear Power Station (Vermont Yankee) complies with the General Design Criteria (GDC) specified in 10 CFR Part 50 Appendix A, or the draft GDC published by the Atomic Energy Commission (AEC) in 1967. As the basis for their request, the Petitioners stated that this information is essential for two NRC regulatory activities at Vermont Yankee: (1) the NRC's review of Entergy's application for an extended power uprate (EPU), and (2) the NRC's engineering assessment. The Petitioners stated that until the design bases are clearly identified, any inspection or assessment is meaningless.

Enclosure

In a letter dated August 20, 2004, to the Petitioners, the NRC stated that the staff would not treat this request under the 10 CFR 2.206 process because the issues could be addressed through the ongoing licensing proceeding related to the application for an EPU. The period during which a hearing could be requested closed on August 30, 2004. The staff noted that, in accordance with 10 CFR 2.1205(1)(2), if a petition to intervene and request a hearing in a licensing proceeding does not satisfy the legal requirements for a hearing or intervention, the Atomic Safety and Licensing Board Panel (ASLBP) or the Presiding Officer may refer the request to the 10 CFR 2.206 process, in which case, the NRC may accept it for review under 10 CFR 2.206. In response to the Petitioners' request for immediate action due to the imminent performance of the Engineering Team Inspection in August 2004, the letter stated that other methods are available to the inspectors to obtain design basis information, rendering a Demand for Information unnecessary for the purposes of the inspection.

By teleconference on August 26, 2004, the Petitioners discussed the petition with the NRC's Petition Review Board (PRB). This teleconference was transcribed and the transcript is publicly available as a supplement to the petition. The transcript is available for inspection at the Commission's Public Document Room (PDR), at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland, or electronically in the Agencywide Documents Access and Management System (ADAMS) (Accession number ML042870477). Publicly available records will be accessible from the ADAMS Public Electronic Reading Room on the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who have problems in accessing the documents in ADAMS should contact the NRC PDR reference staff by telephone at 1-800-397-4209 or 301-415-4737 or by e-mail to pdr@nrc.gov.

On August 30, 2004, the New England Coalition filed a request for a hearing related to the proposed Vermont Yankee EPU. Among the contentions submitted was a contention that

the licensee had failed to maintain adequate documentation to determine design basis conformance. This contention, for which Mr. Blanch provided a supporting statement, was similar to the concern raised in the Petitioners' 10 CFR 2.206 petition. By order dated November 22, 2004, the ASLBP declined to admit this contention for hearing. The staff subsequently decided to accept the petition for review pursuant to 10 CFR 2.206, as discussed in a letter to the Petitioners dated January 17, 2005.

On December 8, 2004, the Petitioners supplemented their petition to request that the NRC demonstrate that Vermont Yankee is in compliance with its GDC and other applicable regulations. The Petitioners also expressed their concerns with the process used to conduct the engineering inspection at Vermont Yankee, and repeated the requests for enforcement action discussed in their original petition.

By letter dated May 13, 2005, the NRC staff requested Entergy to provide information related to the petition. Entergy responded by letter dated June 14, 2005, and the information provided was considered by the staff in its evaluation of the petition.

The NRC staff sent a copy of the proposed Director's Decision to the Petitioners and to the licensee for comment by letters dated May 17, 2005. The staff did not receive any comments on the proposed Director's Decision.

II. Discussion

As discussed in Section I, the Petitioners requested that the NRC issue a Demand for Information requiring the licensee to provide information that clearly and unambiguously describes how Vermont Yankee complies with the GDC specified in 10 CFR Part 50, Appendix A, or the draft GDC published by the AEC in 1967. The specific concerns raised by the Petitioners which are used as the basis for their request are discussed in the following paragraphs.

A. Concern 1 - Conformance With 10 CFR 50.71(e)

1. *Petitioners' Concern*

The Petitioners stated in their July 29, 2004, letter that Appendix F to the updated final safety analysis report (UFSAR) is neither meaningful or useful due to the marking of the appendix as "historical," and the summary in the appendix which states that "the applicability of the historic design criteria conformance statements to the current facility design has not been evaluated and as such should not be considered current design configuration."

2. *Staff's Response*

Background

The original Appendix F to the UFSAR documented how Vermont Yankee conformed to the proposed GDC published by the AEC in July of 1967. Vermont Yankee was issued a construction permit in December 1967. In 1971 the AEC published the final version of the GDC as Appendix A to 10 CFR Part 50. In approving the final GDC, the Commission stated that they were not new requirements, but were promulgated to more clearly articulate the licensing requirements and the practices in effect at that time. In 1982 the licensee for Vermont Yankee notified the NRC of a revision to Appendix F. The purpose of the 1982 revision of Appendix F to the UFSAR was to document how the design of Vermont Yankee met the intent of the final GDC, because NRC guidance was not clear at the time regarding the treatment of plants with construction permits granted prior to issuance of the final GDC. In a letter dated September 28, 1999, the licensee clarified that Vermont Yankee was explicitly licensed to the requirements of the draft GDC. This letter was prompted by a Commission decision in 1992 that the staff would not apply the final GDC to plants with construction permits issued prior to May 21, 1971. With the clarification by the Commission that pre-GDC plants, such as Vermont Yankee, do not need exemptions to the final GDC, the licensee notified the NRC that it intended to reinstate the

original version of Appendix F in the final safety analysis report (FSAR). The September 28, 1999, letter did not indicate that Vermont Yankee intended to mark this appendix as historical. The NRC's November 12, 1999, response to the licensee's September 28, 1999, letter stated that, because the licensee did not indicate that the proposed change involved a Technical Specification (TS) change or an unreviewed safety question, the staff did not intend to review Vermont Yankee's position regarding reinstatement of the original Appendix F. However, the letter stressed that the NRC's decision not to review did not indicate agreement or disagreement with the licensee's position. By letter dated November 2, 2001, the licensee submitted Revision 17 to the UFSAR, including a revised Appendix F with a footnote marking the appendix as "historical."

Applicable Regulations

Section 50.71(e) of 10 CFR requires operators of nuclear power plants to "update periodically...the final safety analysis report originally submitted as part of the application for the operating license, to assure that the information included in the report contains the latest information developed." Regulatory Guide (RG) 1.181, "Content of the Updated Final Safety Analysis Report in Accordance With 10 CFR 50.71(e)" was written in response to a recognition that additional guidance regarding compliance with 10 CFR 50.71(e) was necessary. As stated in RG 1.181, "The objectives of 10 CFR 50.71(e) are to ensure that licensees maintain the information in the UFSAR to reflect the current status of the facility and address new issues as they arise, so that the UFSAR can be used as a reference document in safety analyses." RG 1.181 endorses the methods described in Nuclear Energy Institute (NEI) report, NEI 98-03, "Guidelines for Updating Final Safety Analysis Reports," dated June 1999, as acceptable for complying with the provisions of 10 CFR 50.71(e).

NEI 98-03 provides the following definition of historical information:

“Historical information is that which was provided in the original FSAR to meet the requirements of 10 CFR 50.34(b) and meets one or more of the following criteria:

- information that was accurate at the time the plant was originally licensed, but is not intended or expected to be updated for the life of the plant
- information that is not affected by changes to the plant or its operation
- information that does not change with time.”

NEI 98-03 explicitly states that the plant’s design bases should not be designated as historical because “the original design bases continue to be part of the overall design bases for the facility, and new information may warrant their update.”

Section 50.34(b) of 10 CFR, “Final safety analysis report,” states, in part, that, “The final safety analysis report shall include information that describes the facility, presents the *design bases* and the limits on its operation, and presents a safety analysis of the structures, systems, and components and of the facility as a whole...” [emphasis added]

Section 50.2 of 10 CFR, “Definitions,” states, in part, that, “Design bases means the information which identifies the specific functions to be performed by a structure, system, or components of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design.”

Staff Evaluation

The staff recognizes that NEI 98-03 is not a regulatory requirement and the NRC may determine the acceptability of other methods to meet 10 CFR 50.71(e) on a case-by-case basis. However, Entergy specifically stated that it used the guidance in NEI 98-03 in its determination that Appendix F could be made historical and believed that it fully complied with the industry guidelines (see Entergy’s Answer to the New England Coalition’s Request for a Hearing, dated September 29, 2004, ADAMS Accession No. ML042820090). By marking UFSAR Appendix F

as historical, the licensee made the decision not to maintain the information as current. In order to determine, in this case, if the licensee met the intent of 10 CFR 50.71(e), the NRC staff, in a letter dated May 13, 2005, requested that Entergy provide the following information:

1. Explain how the designation of Appendix F as historical meets the guidance contained in NEI 98-03 and meets the intent of 10 CFR 50.71(e) regarding maintenance of design basis information.
2. If a determination is made that the historical designation for Appendix F is not consistent with the regulations, provide a plan and schedule for revising the UFSAR to include current information on the overall design and licensing bases for the facility.

The licensee provided its response in a letter dated June 14, 2005. The response to the first question stated, in part, that:

- UFSAR Appendix F was a one-time comparison, performed at the time of original licensing, to demonstrate conformance with the draft GDC. Appendix F contains a discussion of design criteria to which Vermont Yankee's original design conformed, and is thus properly designated as "historical information" consistent with the definition in NEI 98-03. Therefore, the designation of Appendix F as historical information meets the intent of 10 CFR 50.71(e) regarding maintenance of design bases information.
- Vermont Yankee, in a letter dated February 14, 1997, provided its response to an NRC request for information, pursuant to 10 CFR 50.54(f), regarding the adequacy of design basis information. That letter included a commitment to perform a verification of the UFSAR. The licensee stated that the UFSAR verification effort is complete and included both an accuracy and completeness verification. The effort used the guidance in NEI 98-03 and verified that the

applicable design bases requirements were included within the controlled portion of the UFSAR.

The licensee's response to the second question stated, in part, that:

- Entergy's review confirmed that there are no regulatory requirements that would require a summary of the conformance to the draft GDCs to be included in the UFSAR. However, the licensee believes that it would be beneficial for their staff to have cross references from the draft GDCs to the various sections of the UFSAR that contain information demonstrating conformance with the applicable draft GDC and the final GDC contained in Appendix A to 10 CFR Part 50 that may have been invoked in the licensing basis.
- The licensee committed to provide this information in the next UFSAR update, which will be submitted, in accordance with 10 CFR 50.71(e), within 6 months after completion of the next refueling outage.

The NRC staff agrees with the licensee's statement that there are no regulatory requirements that would require a summary of the conformance to the draft GDCs to be included in the UFSAR. The staff concludes that the designation of UFSAR Appendix F as historical information is consistent with the guidance in NEI 98-03, and would meet the intent of 10 CFR 50.71(e) regarding maintenance of design basis information, if the relevant information, consistent with the definition of "design bases" in 10 CFR 50.2, is contained in other portions of the UFSAR that are updated to reflect current plant design. Following the licensee's next update of the UFSAR to add the cross references mentioned above, the NRC staff will evaluate if any enforcement action is warranted.

B. Concern 2 - Conformance to Draft GDC

1. *Petitioners' Concern*

The Petitioners assert that the licensee, or the NRC, must be able to demonstrate how Vermont Yankee conforms with, or deviates from, each of the draft GDC. Absent a documented comparison of Vermont Yankee's design against the draft GDC, the Petitioners claim that the NRC cannot conclude that the plant is in conformance with regulations and, therefore, there is no assurance of adequate protection to the general public.

2. *Staff's Response*

The GDC are referenced in 10 CFR 50.34(a), which specifies information to be submitted for a construction permit. The NRC evaluated each plant against the draft GDC or final GDC as applicable during initial licensing. A prerequisite to the issuance of the operating license was the finding that the facility will operate in conformity with the rules and regulations of the Commission and will not endanger the health and safety of the public. The safety review process, by which changes to a plant and its operating procedures subsequent to initial licensing are evaluated per the criteria of 10 CFR 50.59, provides an adequate basis for concluding that the plant continues to meet the licensing bases. This philosophy was established when the Commission decided not to apply Appendix A (the final GDC) to plants with construction permits issued prior to May 21, 1971. In a Staff Requirements Memorandum dated September 18, 1992, the Commission approved the option of not applying the final GDC to these plants and not requiring such plants to seek exemptions from the GDC. The Commission noted that the regulatory standard for such plants is plant-specific and is documented in the license, the licensing safety evaluation report, and the FSAR. As stated in SECY-92-223, "Existing regulatory processes are sufficiently broad and rigorous to ensure that plants continue to be safe and to comply with the intent of the GDC."

Consistent with this direction, whenever a change to the licensing or design basis is requested for Vermont Yankee, the NRC review process ensures that changes are reviewed against the relevant design and licensing bases to provide reasonable assurance that the plant continues to meet the intent of the draft GDC. In this way, the NRC maintains assurance that the public is adequately protected.

The NRC has not compiled, and does not require the licensee to compile, a complete list of a plant's current conformance to the draft GDC. The design and licensing bases for any plant reside in many documents. These documents are either submitted to the NRC as part of the formal docket or are available at the plant for review by NRC inspectors.

C. Concern 3 - Implications for NRC Reviews and Inspections

1. *Petitioners' Concern*

The Petitioners claim that, absent a compilation of the licensee's conformance to the draft GDC, it is impossible for the NRC's pending engineering assessment and its ongoing review of Entergy's EPU application to ascertain critical safety and reliability issues. The Petitioners state that any inspection or assessment is totally meaningless until the design bases are clearly identified.

2. *Staff's Response*

The NRC Office of Nuclear Reactor Regulation Office Instruction LIC-100, "Guideline for Managing the Licensing Bases for Operating Reactors," provides a description of the various attributes of the elements of the licensing bases for operating reactors. The guideline states that "although the GDC may be viewed as legally binding on licensees (in the absence of an approved alternative design bases), issues associated with licensing, inspection or enforcement are usually tied to more explicit NRC requirements (technical specifications or specific regulations)." Therefore, a compilation of a plant's compliance with the GDC or draft GDC is

not necessary for the staff to perform licensing reviews or inspections. However, the staff must be able to determine the design basis of a plant in order to perform these reviews and inspections. That design basis information may be obtained through several sources, including the UFSAR, license, orders, calculations, etc. The staff may obtain this information onsite, in docketed information, or through requests for information to the licensee.

The staff's review of the EPU application is based on NRC Review Standard RS-001, "Review Standard for Extended Power Uprates." RS-001 contains guidance for evaluating each area of review in the application, including the specific GDC used as the NRC's acceptance criteria. To aid the staff in its review, the licensee submitted supplements to its EPU application dated October 1 and October 28, 2003. The supplements provided a matrix cross-referencing the design criteria in the Vermont Yankee licensing basis to the final GDC. In a supplement to its application dated January 31, 2004, Entergy provided a revision to the template safety evaluation in RS-001 replacing the numeric values of the GDC with the corresponding Vermont Yankee design criteria and draft GDC that constitute Vermont Yankee's current licensing basis. Related changes to Vermont Yankee-specific design criteria were also incorporated in the revised template. The revision provided by the licensee aids the staff's review of the EPU application using the current licensing basis, including information on the conformance of the proposed EPU to the draft GDC.

Therefore, the NRC does not believe that the information requested by the Petitioners is necessary for the staff to perform a thorough and meaningful evaluation of the EPU application or an effective Engineering Team Inspection.

D. Concern 4 - Accuracy of Appendix F

1. *Petitioners' Concern*

The summary description in Section F.1 of the UFSAR states that the historic design criteria conformance statements should not be considered current design configuration and that “information regarding application of the General Design Criteria can be found elsewhere in the UFSAR and in other design and licensing basis documents.” The Petitioners in their July 29, 2004, letter and in the transcript of the PRB meeting on August 26, 2004, state that the reference to “elsewhere in the UFSAR” is an unsupported and inaccurate statement as the GDC are not discussed in the UFSAR other than in Appendix F.

2. *Staff's Response*

The text cited by the Petitioners as the basis for the concern is in the last sentence in the following paragraph from UFSAR Appendix F:

“Vermont Yankee has made changes to the facility over the life of the plant that may have invoked the final General Design Criteria as design criteria. Such invocation was not intended to constitute a regulatory commitment, unless specifically docketed as such. Information regarding application of the General Design Criteria can be found elsewhere in the UFSAR and in other design and licensing basis documents.”

The staff has determined that, taken in context, the sentence quoted by the Petitioners pertains to the final GDC (i.e., 10 CFR Part 50, Appendix A), not the draft GDC. The staff did an electronic search of the entire UFSAR and found that UFSAR Sections 7.16.4 and 10.20.4 discuss Vermont Yankee’s invocation of final GDCs 12 and 19, respectively. In addition, an electronic search of the Vermont Yankee TSs found that final GDCs 60 and 64 are invoked as part of the Bases for TS 3.8.K.

The staff also reviewed a Vermont Yankee internal document, "Design Basis Document [DBD] for Service Water Systems," which was submitted to the NRC as part of the EPU hearing process. Section 2.2 of the DBD contains the regulatory requirements applicable to the systems and discusses conformance to applicable draft GDC as well as several of the final GDC. The staff found information elsewhere in the UFSAR and other design basis documents (e.g., the DBD) and licensing basis documents (e.g., TSs) regarding application of the final GDC consistent with the information in the UFSAR Appendix F paragraph quoted above.

The staff determined that the sentence quoted by the Petitioners is intended to convey that although the design and licensing basis for Vermont Yankee is the draft GDC, there is information elsewhere in the UFSAR and other design and licensing basis documents that may have invoked the final GDC. The staff concludes that the summary description in Section F.1 of the UFSAR is accurate.

E. Concern 5 - Conduct of Engineering Inspection

1. *Petitioners' Concern*

In their December 8, 2004, letter, the Petitioners express concerns with the conduct of the Engineering Team Inspection. In particular, the Petitioners stated that the condition of Vermont Yankee was reviewed against design drawings and specifications, operating procedures, calculations, Information Notices, Generic Letters, and RGs, and was not reviewed for compliance with NRC regulations, including the GDC. The Petitioners claim that the UFSAR does not reflect the design bases of the plant and, therefore, the use of the UFSAR as the basis for the inspection is inadequate.

In addition, the Petitioners state that the fact that the engineering inspection identified areas of noncompliance supports their contention that the plant is not in compliance with NRC regulations and, therefore, adequate protection of public health and safety is not assured.

2. *Staff's Response*

The Commission's regulations in 10 CFR Parts 50 and 100 embody a collection of broad safety principles in addition to a collection of specific safety requirements. Some guidance was needed to augment the broad safety principles in the regulations in order to apply them to the specific design and operation of individual operating licenses. The GDC established criteria for developing the design and performance requirements. These requirements were formalized in regulations and acceptable ways to implement them are described in guidance documents such as Standard Review Plans, RGs, and Branch Technical Positions. Inspectors apply their knowledge of these NRC requirements and guidance documents during inspections.

Regarding the concern about inspection findings, the NRC staff does not agree with the Petitioners' conclusion that findings of noncompliance during an inspection imply that adequate protection of public health and safety is not assured. The NRC regards compliance with regulations, license conditions, and technical specifications as mandatory. However, the NRC also recognizes that plants will not operate trouble-free. This is clearly articulated in Criterion XVI of Appendix B to 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." Criterion XVI states that , "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, and defective material and equipment, and nonconformances are promptly identified and corrected." The NRC's approach to protecting public health and safety is based on the philosophy of defense-in-depth. Briefly stated, this philosophy (1) requires the application of conservative codes and standards, which create substantial safety margins in the design of nuclear plants; (2) requires high quality in the design, construction, and operation of nuclear plants to reduce the likelihood of malfunctions, including the use of automatic safety system actuation features; (3) recognizes that equipment can fail and operators can make mistakes, thus requiring redundancy in safety systems and components to reduce the chances that malfunctions or

mistakes will lead to accidents that release fission products from the fuel; and (4) recognizes that, in spite of these precautions, unforeseen events that could result in serious fuel damage accidents may happen, thus requiring containment structures and other safety features to mitigate the release of fission products off site. Additionally, emergency planning is considered another layer of defense-in-depth. While compliance with the NRC's regulations, as a general matter, provides reasonable assurance that public health and safety will be adequately protected, noncompliance does not necessarily mean that public health and safety is not adequately protected. The NRC must exercise its judgment regarding thresholds for determining the safety of plant operation. Many inspections conducted by the NRC result in findings of noncompliance. NRC's Inspection Manual Chapter 0305 provides an overview of the assessment program for operating reactors. Inspection Manual Chapter 0609 describes the significance determination process used to determine the safety significance of inspection findings. The safety significance is used to guide the NRC's actions taken in response to inspection findings. For the large majority of violations the noncompliance is not significant from a risk perspective and does not pose an undue risk to the public health and safety.

III. Conclusion

The NRC staff has reviewed the basis for the Petitioners' requested actions. The staff has concluded that the designation of UFSAR Appendix F as historical information is consistent with the guidance in NEI 98-03, and would meet the intent of 10 CFR 50.71(e) regarding maintenance of design basis information, if the relevant information, consistent with the definition of "design bases" in 10 CFR 50.2, is contained in other portions of the UFSAR that are updated to reflect current plant design. Following the licensee's next update of the UFSAR to add the cross references mentioned in Section II.A of this Director's Decision, the NRC staff will evaluate if any enforcement action is warranted.

Based on the reasons discussed in Section II of this Director's Decision, the NRC has concluded that the NRC licensing review process provides reasonable assurance that the plant continues to meet the intent of the draft GDC and adequate protection of public health and safety is assured. The NRC also concludes that it did not need a compilation of the Vermont Yankee's current conformance to the draft GDC to review the application for an EPU or to conduct the Engineering Team Inspection (inspection was completed in September 2004). Consequently, the NRC denies the request to issue a demand for information to the licensee.

As provided in 10 CFR 2.206(c), a copy of this Director's Decision will be filed with the Secretary of the Commission for the Commission to review. As provided for by this regulation, the decision will constitute the final action of the Commission 25 days after the date of the decision unless the Commission, on its own motion, institutes a review of the decision within that time.

Dated at Rockville, Maryland, this 16th day of August 2005.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

R. William Borchardt, Acting Director
Office of Nuclear Reactor Regulation